

AMENDMENTS TO THE SPECIFICATION

Please amend paragraph [0017] as follows:

[0017] As previously mentioned, the length of lateral grain growth attained by a single laser irradiation depends on the laser energy density, the temperature of the substrate, and the thickness of the amorphous silicon film. Typically, the lateral grain growth ranges from 1 to 1.5 micrometers $[(\square)]$.

Please amend paragraph [0041] as follows:

[0041] In the method of forming a polysilicon thin film transistor, the patterning the metal layer includes patterning the silicon-oxidized layer into the same shape as the gate electrode. The interlayer insulator is formed of one of silicon oxide and silicon nitride. The RTA and RTO processes are conducted at a temperature in the range of about 500 to 1000 degrees Celsius $[(\square)]$ for less than 60 minutes. The RTO process is conducted under an oxygen-based atmosphere, which includes at least one of O_2 , N_2O , and NO . In the present invention, the method further includes dehydrogenating the amorphous silicon layer before crystallizing the amorphous silicon layer. The metal layer is selected from the group consisting of aluminum (Al), aluminum alloy (Al-alloy), and molybdenum (Mo).

Please amend paragraph [0054] as follows:

[0054] FIG. 7A shows a step of forming a buffer layer 305 and an amorphous silicon layer 310. Silicon oxide (SiO_2) is formed on the entire surface of a transparent substrate 300 so that the buffer layer 305 is formed on the transparent substrate 300. Thereafter, amorphous silicon is formed on the entire surface of the buffer layer 305 so as to form the amorphous silicon layer 310. In a later step, the amorphous silicon layer 310 will be crystallized. In crystallizing the amorphous silicon layer 310, since heat is applied to the transparent substrate 300, alkali ions, such as potassium ions (K^+) and/or sodium ions (Na^+), may be diffused from the transparent substrate 300 to the silicon layer 310 and the diffused ions may deteriorate the quality of silicon layer 310. Therefore, the buffer layer 305 is interposed between the transparent

substrate 300 and the amorphous silicon layer 310 so as to prevent the alkali ion diffusion. Furthermore, after forming the amorphous silicon layer 310 on the buffer layer 305, a dehydrogenation process is performed to remove hydrogen from the amorphous silicon layer 310.

Please amend paragraph [0057] as follows:

[0057] Subsequently, in FIG. 7D, a rapid thermal annealing (RTA) process is conducted on the transparent substrate 300 having the patterned polysilicon layer 315 under a H₂ atmosphere in a vacuum chamber. The RTA process blunts and flattens the protuberance 316, as shown in FIG. 7D. A temperature for the RTA process ranges from 500 to 1000 degrees Celsius [(□)], and the RTA process lasts for about 1 to 60 minutes.

Please amend paragraph [0058] as follows:

[0058] The RTA process performing at the temperature of 500 to 1000 degrees Celsius [(□)] under the H₂ atmosphere anneals the patterned polysilicon layer 315, and thus, the protuberances from the surface of the patterned polysilicon 315 is blunted and flattened. This is referred to as a silicon migration phenomenon that occurs at a high temperature condition under the H₂ atmosphere. As the temperature becomes higher and the pressure becomes lower, the silicon migration phenomenon readily occurs. During the RTA process, silicon moves in a direction that reduces a silicon surface potential energy so that the protuberances 316 are lowered to the level of the surface of the polysilicon layer 315. Namely, the protuberances 316 existing in the border of the growing grains are removed by the RTA process.

Please amend paragraph [0059] as follows:

[0059] After the RTA process, the chamber containing the annealed polysilicon layer 315 changes the atmosphere from the H₂ atmosphere to an oxygen-based atmosphere. For example, O₂, N₂O, NO, and other similar gases substitute H₂. Then, a rapid thermal oxidation (RTO) is conducted in the chamber containing the above-mentioned oxygen-based gases for less than 60

minutes at a temperature of 500 to 1000 degrees Celsius $[(\square)]$. Therefore, a silicon-oxidized layer 320 is formed on the surface of the annealed polysilicon layer 315, as shown in FIG. 7E. A thickness of the silicon-oxidized layer 320 depends on the process temperature and time inside the chamber. The silicon-oxidized layer 320 then becomes a gate insulator.